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OF THE
UNIVERSITY OF ILLINOIS

REPORT

TO THE

STOCKHOLDERS

OF THE

BOSTON, HARTFORD AND ERIE RAILROAD

COMPANY,

September 25, 1864,

With Addenda to March 1, 1865.

HARTFORD:
PRESS OF CASE, LOCKWOOD & COMPANY.
1865.

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Boston, Hartford and Erie Railroad Company.

DIRECTORS CHOSEN JANUARY 5, 1865.

GEORGE M. BARTHOLOMEW,	Hartford, Conn.
BENJ. E. BATES,	Boston, Mass.
JAMES M. BEEBE,	" "
JAMES L. LITTLE,	" "
JOSEPH W. CLARK,	" "
JAMES LOW,	New York, N. Y.
HENRY J. GARDNER,	" "
H. H. BOODY,	" "
EDWARD LEARNED,	" "
LEGRAND LOCKWOOD,	Norwalk, Conn.
OAKES AMES,	North Easton, Mass.
EARL P. MASON,	Providence, R. I.
WM. S. SLATER,	" "
THOMAS BELKNAP,	Hartford, Conn.
SABIN L. SAYLES,	Killingly, "

OFFICERS.

GEO. M. BARTHOLOMEW,	Hartford, Conn.,	President.
JAMES A. DUPEE,	Boston, Mass.,	Treasurer.
OLIVER S. SANFORD,	" "	Secretary.
EDWARD APPLETON,	" "	Chief Engineer.
ROBERT G. RANKIN,	Newburg, N. Y.,	Agt. and Commis'r.

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OFFICE OF THE
BOSTON, HARTFORD AND ERIE RAILROAD CO.,
HARTFORD, September 25th, 1864.

To the Stockholders of the Boston, Hartford and Erie Railroad Company:

In the year 1863 the legislature of Connecticut granted a charter to the Boston, Hartford and Erie Railroad Company authorizing the purchase, contracting with, or leasing of, the whole or part of any railways whose lines form part of railway lines from Boston, in Massachusetts, and from Providence, in Rhode Island, westwardly across the State of Connecticut.

The purchases made under the rights of this charter cover the various grants heretofore made by the States of Massachusetts, Rhode Island, Connecticut and New York to the several corporations now included in the consolidated corporation of the *Boston, Hartford and Erie Railroad Company.*

The *New York and Hartford Railroad Company* was chartered in 1845, for the construction of a road from Hartford, via Bristol, Waterbury, Danbury, &c., "in such route as shall be deemed most expedient," with permission to make contract with any other railroad company "that might be incorporated for the continuance of said road from its western terminus, within the state of New York," and their engineer was instructed "to survey the most direct, feasible and expedient route for a railroad from Hartford to the western line of Connecticut, in the direction of the city of New York."

The Manchester Railroad was chartered in 1833, the Hartford and Providence in 1847, and in 1849 these were merged with the New York and Hartford road into one corporation under the name of the *Hartford, Providence and Fishkill Railroad Company.*

By these acts the State of Connecticut clearly expressed her policy and wish of uniting her railroad lines in these directions with the city of New York on the southwest, and with the Erie Railway on the west.

In 1850, the Midland, the Norfolk County, and the Southbridge and Blackstone Railroad Companies, were authorized by the Legislature of Massachusetts to unite with the Willimantic and Thompson, and the Hartford, Providence and Fishkill Railroad Companies, and form one corporation, thus plainly indicating that she then deemed it for her interest to facilitate by legislation the extension of the lines of railway in the directions proposed by the above named companies, whose western portions of roadway were not then completed.

In June, 1846, the State of Rhode Island granted a charter to the Providence and Plainfield Railroad Company, and in January, 1852, authorized a consolidation, or union of that road, with the Hartford, Providence and Fishkill Railroad Company.

The State of New York, realizing the great importance of the Boston, Hartford and Erie, to her own great Erie Railway, emphatically expressed her sympathy with the policy so long and so favorably advocated by Connecticut and the other States for a direct and through communication with the great West. At the last meeting of the Legislature (viz., in April, 1864,) an act of a liberal and most efficient character, was unanimously passed, to allow of the consolidation of the companies incorporated under her laws, with the great through line of the Boston, Hartford and Erie, thereby expressing her desire to give solidity and concentration to a united effort.

Thus it will be observed, that the four States alluded to have, by repeated acts of legislation, favored and encouraged the extension and consolidation of the lines of railway required to make up this one corporation now under your care, and which it is hoped may soon be successfully and satisfactorily completed.

The parties who obtained and those who now hold the rights of this charter, aim and intend to finish a first class road, complete in every department, for the transportation of passengers and freight between Boston and Providence on the east, and Fishkill, on the Hudson river, on the west, connecting at Newburgh, opposite the latter place, with the Erie Railway, now in connection by the Atlantic and Great Western and other roads, with all the various Railroads of the West, and also furnishing increased facilities for business between Boston and New York, as well as with the *eleven* railroads whose tracks the Boston, Hartford and Erie will cross or intersect.

The companies representing the through broad gauge route from New York and Newburgh to St. Louis, &c., are now building additional locomotives, passenger and freight cars for the through business, as they now transport passengers and freight from the Hudson river to St. Louis and other western cities, without change of cars.

Arrangements have been agreed upon for facilitating the transportation of freight accruing upon the Western lines in connection with us, and destined to the places upon our road, and also for that bound westward over our lines.

Of the direct line between Boston and Fishkill there is already constructed, (from Boston to Mechanicsville, and from Willimantic to Waterbury,) the iron laid, and mostly in operation by regular trains, - - - 122½ miles.

The portion between Thompson and Southbridge is graded and ready for the superstructure, which will be immediately laid, - 17½ "

The portion between Providence and Willimantic is in excellent order and daily use, -	58½ miles.
The Medway branch is in daily operation, -	4½ "
Total number of miles which will be in operation by 1st January, 1865, - -	203
The portion between Mechanicsville and Willimantic is in process of construction, -	26 miles.
Of the remaining distance, viz.: from Fishkill to Waterbury, the plans and work are prepared and ready for letting, from the Hudson river up the Fishkill valley, - -	20 "

For the remainder of the line between Waterbury and Fishkill, about 55 miles, the chief engineer asks more time to examine carefully and ascertain whether a more direct and desirable route can be found between our present western terminus and the Fishkill valley, and in our opinion it is judicious to direct careful instrumental surveys for that purpose, as the result of the past few months' engineering shows that much care and investigation are necessary in the selection of routes between the points designated.

The greatest altitude on the Western road between Boston and Albany is 1450 feet above tide water, and on this road, as built or surveyed, is 763 feet.

As the direction of the road is across the usual river courses instead of with them, the difficulties of finding easy lines or grades are greater than are supposed by any one passing over similar lines in the swift moving railway car. The construction on the railroad lines pursuing the river courses or valleys is cheaper than those crossing the various valleys and intervening mountains.

In the recent and present fluctuating state of the markets for materials and labor, it has been impossible to form estimates which could be relied upon as guides for future action. The engineer has made up his report, and estimate,

both of cost of construction and of income, to which we refer. Messrs. Baldwin, Kirkwood and Adams, gentlemen of distinguished reputation as engineers, have critically, in person, examined the line, surveys and estimates; their report and letters may be found annexed.

The Engineer's Report and the appendix contain interesting statistical details pertaining to railroad business, both general and also that relating to lines for comparison with our own, by which it appears that the Delaware and Hudson Canal and Pennsylvania Coal Companies delivered at Rondout, in 1863, 1,491,054 tons of coal and the latter Company has a contract with the Erie Railway for the delivery of about one million of tons on the Hudson river, a large portion of which must be delivered at Newburgh, opposite the terminus of this road.

Another road for coal from the Pennsylvania Lehigh Coal fields to Newburgh is in contemplation, thirty miles of which from Warwick east is already constructed. From these sources large quantities of coal will be delivered at our terminus at Fishkill, from whence we expect to transport it over our road to the various cities and towns on or near our lines.

The portion of the route between Boston and the west line of Connecticut is generally well known. The division between Connecticut and the Hudson River, is a comparatively new feature of the enterprise to the public as to its topography and resources, although as before stated, the policy of Connecticut for the last fifteen years has been to find a channel for her industry through it to western markets.

The topographical features of this division are eminently suggestive of a rail road movement. From Newburgh Bay to the Housatonic Mountains the Highlands form a natural barrier or dam, the easterly and westerly termini of which barrier are the termini of this division, and are the main points or outlets for the transmission of produce and population east and west from Dutchess and Putnam counties.

The mineral and agricultural resources of Dutchess County are varied and great, and only await the completion of this road toward a development which will sustain this division without the addition of the through travel.

Limestone and marble of the best quality, together with soapstone, and shell marl are found along the line.

"There is no better iron ore than the Fishkill or Beekman hematite, and the fact is worthy of note that some of the rails for the Hudson River Railroad, (the best ever laid in the United States,) were made in part from ore mined and smelted in Dutchess County, taken to New Jersey, and there worked and rolled into rails to be laid down again on its own soil."

"Intelligent iron masters have expressed the opinion, after careful inquiry into the facilities for manufacturing iron on the Fishkill or Matteawan Creek, (on estimates based upon prices of material before the war,) that pig iron could be made from this ore for less than seventeen dollars per ton." The prospective prices and demand for iron under the present tariff and consumption, are now such as to justify iron masters in hauling coal sixteen miles to their furnaces.

Since the commencement of surveys of the road a continuation of the Tilly Foster vein of magnetic iron ore (alluded to in the Engineer's Report, page 22,) has been discovered within a short distance of our line of road and the Hematite ore beds.

A very large portion of the pig and rolled iron consumed in the manufactories of New England comes from the valley of the Hudson.

Millions of feet of lumber are stored on Newburgh Bay for eastern markets, and when the Schenectady and Catskill Railroad, now under construction, is extended to Newburgh to connect with our ferry, large amounts of lumber from the immense lumber region on the line of the Sackett's Harbour and Saratoga Railroad, now under construction, will pass over our road for distribution in southern New England.

Orange, Rockland, and Sullivan Counties have for years supplied large amounts of iron and hard wood lumber to the same market.

It is estimated (from the applications already made) that many acres of land at our western terminus will be required for storing coal and lumber from the line of the Erie Railway and the New York Canals, and Canada.

Our western terminus is also connected directly with that great back country which has long been famed for its agricultural resources and wealth, and New England has for years drawn largely, by water transportation, from this region.

Railroad connections can be completed from Newburgh Bay to the Ohio valley via Easton, Harrisburg and Pittsburg, as it needs but about thirty miles of road to be built from Warwick in New York to the Delaware Water Gap, or about twenty miles from Warwick to Newton, to give a direct and comparatively short line between Newburgh and Pennsylvania and Ohio. Newburgh Bay is a beautiful sheet of water, capacious enough for the naval tonnage of the United States, and ships and other square rigged vessels are daily to be seen at Newburgh wharves, loading and unloading the various products of the country.

The State of Connecticut has, in our opinion, a great interest in granting every reasonable facility towards the completion of this great work, as it will open direct communication with the *West*, greatly increase the facility of business transactions between her own citizens, requiring railroad movements, and bring them the products of the prairies, of the forests, and of the coal fields at less cost than by the present indirect and circuitous routes.

Massachusetts for her Western, New York for the Erie, Pennsylvania for her Central, have each by their millions of dollars, contributed towards the construction of these *great works*, which have added to the wealth of their respective states and must remain as monuments of the well bestowed and liberal aid afforded them.

The Boston, Hartford & Erie have not asked and do not expect to ask of Connecticut any pecuniary aid, but they will claim that it is for the interest of the State of Connecticut and the various railroads therein, to favor by any reasonable legislation the furtherance and promotion of this great and expensive work. Whilst we are confident that the road completed must prove a good investment for capitalists, we are also sure that it will not lessen, but rather add to the business of all other roads connecting with or contiguous to it.

The charter (by the law of Connecticut) limits the amount of bonds to be issued to one-half the sum which the president and chief engineer certify to the comptroller of the state has been actually expended upon that portion of the road and property included in the mortgages upon which said bonds are issued, and by the same charter it is the duty of the comptroller to see that the said bonds never exceed the amount limited by the charter. The mortgage is made to the Treasurer of the State of Connecticut, who, by virtue of his office, is trustee for the bondholders. Thus it will be observed that there can be no question as to the validity and security of all mortgage bonds issued under the charter.

The expediency of extending our line of road at this time, when materials of all kinds and labor are enormously high, may well be questioned, but having 203 miles of road (as we shall within three months) in operation, with a fair equipment, and in good order, costing at least $50,000 per mile, subject to a mortgage debt of less than $21,000 per mile, there remains no doubt in our minds that it is expedient to extend our connections westward to the Erie railway, as fast as the best routes may be ascertained, and the means and facilities furnished for doing the work prudently and well.

By order of the Directors,

GEO. M. BARTHOLOMEW, *President.*

Report of the Treasurer,

Of the Liabilities of the Boston, Hartford and Erie Railroad Company.

Capital Stock issued, 85,000 shares, at $100,		$8,500,000
Bonds on the portion of the Road between Boston and Mechanicsville, and including the Southbridge Branch; at 6 per cent.	$644,250	
Bonds on the Road from Providence to Waterbury, at 7 per cent.	2,055,500	
Bonds on the entire line, due in 1884, at 7 per cent.	571,000	
Total of bonded debt,		3,270,750
Balances accruing in favor of sundry accounts,		180,416.11

JAMES A. DUPEE, *Treasurer.*

BOSTON, Sept. 24th, 1864.

NOTE.—Existing contracts for work on the road in Massachusetts and Connecticut, will require a further issue of bonds amounting to about $500,000, depending upon the results of estimates, and extending over several months. Some unsettled claims against the H., P. & F. Road estimated to be less than $150,000, are not included in the above statement, as they are covered by a portion of the stock above named, or by a sinking fund.

Bonds issued or to be issued upon the entire line will, by the rule of one-half, alluded to on page 10 of the Report, be on a parity for security with the bonds issued under the old organization and assumed by the Boston, Hartford & Erie Railroad Company. $981,000 are now held by the cities of Hartford and Providence, and are due in 1876.

REPORT OF THE CHIEF ENGINEER.

To the President and Directors of the Boston, Hartford and Erie Railroad Company.

I submit the following report of your lines of Railway, the portions constructed, and those to be built, with estimates of the cost of grading, masonry and bridging; and of the business anticipated from the lines when completed.

The through or trunk line, from Boston to the Hudson river, consists of the Railroad formerly known as the *Boston and New York Central*, constructed and extending from the foot of Summer street, Boston, to Mechanicsville, in Connecticut, on the Norwich and Worcester Railroad, 59.57 miles; the Thompson and Willimantic, lying between said last named places, 26.11 miles, now in process of construction; the Hartford, Providence and Fishkill, in operation from Willimantic to Waterbury, 62.87 miles; and the line to be constructed from Waterbury to the Hudson river, 77.26 miles; total 225.81 miles. If a new line shall be adopted from the Housatonic Railroad through Brookfield and New Fairfield, on the line of surveys now in progress, the distance may be shortened five miles. Your line also commences at Providence and is in operation 58½ miles to Willimantic, and there joins the above described line from Boston to the Hudson.

BRANCHES.

From a point 12 miles from Boston a branch is constructed 2 miles long, from the trunk line to Dedham.

Twenty-three miles from Boston, at North Wrentham, the Medway branch is constructed, 4½ miles long, to meet the wants of a thriving community, and aids the business of the main line.

Fifty-two miles from Boston, at East Thompson, Conn., commences the Southbridge branch, 17½ miles long. This is now under construction, is near completion, and can be opened this fall. It crosses and connects with the Norwich and Worcester Railroad at Webster, and runs to the flourishing town of Southbridge.

The above embraces your chartered lines constituting one corporation, under the name of the BOSTON, HARTFORD AND ERIE RAILROAD COMPANY, as follows, to wit:

From Boston to Fishkill, via Danbury,	225.81	miles.*
From Providence to Willimantic,	58.50	"
From East Thompson to Southbridge,	17.50	"
Medway Branch,	4.50	"
Dedham Branch,	2.00	"
Total,	308.31	"

Charters for the following lines are held by other parties, viz.:

At Walpole, a point 19 miles from Boston, the Foxboro' branch, 8½ miles long, is to extend to Mansfield, there connecting with the Taunton Branch Railroad. This line is of great importance to all the south-eastern part of Massachusetts, affording a shorter and more convenient route than any now existing to all points west. Another charter extends from Mansfield to Somerset, opposite Fall River.

There is also a charter for a road from Southbridge to Palmer, at that place connecting with the Western and New London Northern Railroads, and with the lines of Railway leading to Vermont, and the Troy and Greenfield Road. The public and local interests connected with the Foxboro branch, and the Southbridge and Palmer extension, must ensure their construction by other parties, and thus aid our lines. The Webster and Southbridge branch runs through a country rich in manufactures and farm products, and I believe, even without the connection at Palmer, will, in conjunction with the main line, pay a good income on the investment from Southbridge to Boston.

Your line, commencing at the foot of Summer street, has a station nearer the business center of Boston than any road running

* If the line via New Fairfield is adopted it will shorten the distance 5 miles.

south or west from the city. By the side of your track, at extensive wharves, vessels of large tonnage can receive and discharge freights without cartage; and thus connections may be formed for passenger and freight business by the steam and sailing craft plying to Portland, Bangor, and other cities and towns on the Atlantic coast, and in the British possessions, as well as with those carrying passengers and merchandise across the Atlantic. This location, near the commercial center of Boston, gives your line many and great facilities not enjoyed by any other Railway entering the city.

Your other eastern terminus is at Providence, the center of the wealth and commerce of Rhode Island, from whence the manufactures of the loom and workshop find their way over the whole West, which sends her products largely in return therefor.

The western terminus is at Denning's Point, at *Fishkill on the Hudson*, about 60 miles above New York, and directly opposite Newburgh. Newburgh has a population of 18,000, and Fishkill Landing and Matteawan, adjacent, have a population of about 6,000, and at both places large manufactories are in operation. This terminus is admirably located, the station and freight grounds extending to deep water on the Hudson, and presents on the north side a capacious basin for the reception of coal boats from the Delaware and Hudson Canal, (which enters the river at Rondout, 30 miles above,) and canal boats with flour, grain, lumber, &c., from Buffalo and the north. The south side of the point is on the channel of the Fishkill Creek, where more accommodations may be provided for boats, and storage room for lumber, of which no doubt a large amount may be expected by the Erie and Champlain canals for transmission by our road to the interior of New England. At the Point, also, wharves and ferry slips are to be provided for the reception of freight and passengers, also suitable ferry boats with tracks for the transfer of cars. Directly opposite are the extensive docks and works of the Pennsylvania Coal Company, for coal brought by the Erie Railroad.

Your line runs through a country dotted with cities and towns teeming with life and prosperity. Hartford is the central city of your line, a capital of the State of Connecticut, famed for her energy, wealth and thrift; Blackstone, Douglas, Thompson, Webster,

Southbridge, Mechanicsville, Putnam, Willimantic, Plainfield, Baltic, Washington, Anthony, River Point, Rockville, Manchester, New Britain, Bristol, Terryville, Waterbury, Danbury, Brewsters, and some thirteen separate water powers on the Fishkill creek, in operation and employing a large amount of capital, with many other towns and places well known for their productions and manufactures will contribute a great variety of tonnage.

The terminus of the line on the Hudson is at a point nearly equidistant between Albany and New York, and the road runs midway between the Western, the Boston and Worcester Railroads on the north, and Long Island Sound on the south, until it approaches Boston from Blackstone. The conformation of the country is such that it seems improbable that any rival line can be built between the roads last named and the Railroads on the shore of Long Island Sound. The business on the line, rich in manufacturing, agricultural and mineral wealth, must continue to increase upon your road.

The present means of communication for all parts of New England south of the latitude of Boston, with the South and West, are by the Boston and Albany road, the Shore line, and by steamboats.

During a portion of some years navigation by the sound is obstructed by ice, and as a freight line between the East and West the shore line has not been largely used.

In case of a maritime war the navigation of Long Island Sound and the New England coast, and the use of the Shore Line of Railroad, might be seriously impeded.

In such an event the communication with the coal fields and western resources can be maintained by our lines for the benefit of such portions of New England as may require it.

CHARACTER OF LINE.

The portion of the line already constructed, I found to be generally of easy gradients, and the curves, with few exceptions, of large radii, compared with the other lines running east and west in New England. After examination of the country I concluded that the favorable characteristics of that part already built, could be maintained upon the remainder of the line, within the limits of reasonable expenditures; and I have adopted the follow-

ing limits of grade and curvature, within which all parts of the line are to be brought.

The minimum radius of curvature is 1.146 feet 5° per 100 feet. The maximum gradient ascending east is 1.15 per 100 feet, 60.72 per mile, on straight lines, with a diminution of $\frac{5}{100}$ per 100 feet, or at the rate of 2.64 feet per mile for each degree of curvature. The maximum gradient ascending west is 1.25 feet per 100 feet, 66 feet per mile on straight lines, with a similar diminution upon the curves. As the principal object of completing this road to the Hudson river is to obtain a fair share of the immense through traffic between the West and the East, and as it is well known that three quarters in tonnage, of this through traffic, passes from the West to the East, and only one-quarter in the opposite direction, it is evident that a steeper rate of ascent is allowable in going west.

The other line from Boston to the Hudson river, the Worcester and Western, reports upon the Worcester, curves of 600 feet radius, and upon the Western curves of 882 feet radius; and grades upon the Western of 83 feet per mile westward, 75½ feet per mile eastward. The controlling grade of traffic upon the Boston and Albany line is 75½ feet per mile; upon the Boston, Hartford and Erie it is 60¾ feet per mile, allowing an increase of load to the same motive power of nearly 25 per cent. The summit overcome by the Boston and Albany line in the Green Mountain range is 1,450 feet above tide water, while the highest summit passed over by this line is in the range between the Harlem Railroad and the Hudson river, only 763 feet above tide at Fishkill.

While the above shows the limits allowable for gradients and curvatures, I beg leave to refer you to the details upon the subject of the character of the line, and expenses of construction contained in a report by me made to your board. By that you will perceive that the maximum is but seldom demanded, and that the grades and curves are generally much within the limits allowed.

COST OF CONSTRUCTION.

I estimate for grading, and bridging for the new road, single track, with masonry for a double track, between Mechanicsville and Willimantic and between Waterbury and the Hudson river, being about 100 miles, including a double track from the Hudson river to Fishkill village, six miles, and allowing 10 per

cent. for contingencies, $4,059,483. These estimates are based on such prices as prevailed in 1860. Having had experience as a contractor as well as an engineer, I am confident the work at that time could be done within this estimate. How much should be added to these prices in consequence of the disturbance of the currency or how long this disturbance is to continue, you gentlemen, can judge quite as well as myself.

The earth work upon the line already constructed is for a single track, with the exception of fifteen miles from Boston, which is nearly completed for a double track; and it is contemplated to construct at once some six miles of double track from the Hudson river eastward. A third rail at the river will be wanted to make connections with the Erie broad gauge cattle and freight cars. The masonry on the whole line is to be for a double track, in anticipation of a speedy demand for it by the business of the line.

In 1860, a mile of track of the best materials, with rails weighing sixty pounds per yard could be put down for less than $6,000. At the present time it would require a much greater sum; but as we need not provide the iron until the grading is nearly completed, and as during that time, prices will very much fluctuate, it does not seem advisable to make any present estimate of cost of superstructure.

CONNECTIONS.

I propose to refer briefly to the connections with the line from which income may be expected. The connections at Boston and at Providence are too apparent to need particular mention. The connection by the Dedham, Foxborough, Medway and Southbridge branches have been already referred to.

Thirty-six miles from Boston, at Blackstone, we cross and connect with the Providence & Worcester railroad. Sixty-one miles from Boston, at Putnam, the road crosses and connects with the Norwich & Worcester railroad. These are points of considerable business and the connections will be quite advantageous to both roads and the public.

Eighty-five miles from Boston, at Willimantic, the line from Providence comes in. That line crosses and connects with the Norwich & Worcester railroad at Plainfield.

At Willimantic the line crosses and connects with the New London Northern railroad.

Twelve miles east of Hartford, at Vernon, a branch enters our line from Rockville, a large manufacturing village.

At Hartford the line crosses and connects with the New Haven, Hartford & Springfield railroad.

Nine miles west of Hartford, at New Britain, the New Britain and Berlin branch enters and connects, opening a new line to Middletown on Connecticut river.

Fourteen miles west of Hartford, at Plainville, the road crosses and connects with the Canal railroad leading from New Haven to Northampton and Collinsville.

Thirty-two miles west of Hartford, at Waterbury, we cross and connect with the Naugatuck railroad.

The nine localities and connections just referred to have afforded a good interchange of passengers and freight, which will be largely increased by the completion of the through lines.

Fifty-six miles west of Hartford, at Hawleyville, we cross and connect with the Housatonic railroad, a connection of much advantage to both parties, as we shall open for all the northern part of the Housatonic valley a shorter connection with New York than they now have.

Sixty-three miles west of Hartford, at Danbury, we connect with the Danbury & Norwalk railroad, which will, by this road afford the public, in Connecticut, south and southeast of Danbury, their best western connection.

Seventy-three miles west of Hartford, at Brewster, we connect with the Harlem railroad, making a new through line to New York, shorter for all points west of Waterbury than any present line, and as short in practical operation, from Boston, as the one by the way of Springfield and New Haven.

Finally, at the Hudson river, we make our connection by ferry with the Erie railroad to lake Erie, at Dunkirk and Buffalo, and by the Atlantic and Great Western, with Cleveland, Chicago and Cincinnati, and by the Ohio and Mississippi, to St. Louis, substantially one line of road from the Hudson to the Mississippi.

STATISTICS OF BUSINESS.

And first, of the local business. I know of no better way of arriving at this item than to compare the population and business of the towns upon the line, with that of the towns upon the Boston and Albany line, and allowing the same proportionate amount

of business to be derived from each. In making the comparison I shall take the line from Boston to Albany, with all its branches, giving the population and business of every town passed through; and upon our line in the same manner, including the branch from Walpole to Mansfield and the extension of the Southbridge branch to Palmer, as the building of these two is essential to the completeness of our system. The cities of Boston, Albany and New burgh are not included in the estimate. We have, then, a total distance on the Boston and Albany line and branches of 290 miles; and a total distance on the Boston, Hartford and Erie, and its branches of 343 miles. According to the census of 1860, the population of the towns traversed by the Boston and Albany line and branches, was 204,522, equal to 705 per mile; and the amount of annual manufacture in them was $40,340,668, equal to $139,105 per mile. On the Boston, Hartford and Erie line and branches, the population was 293,360, equal to 855 per mile; and the amount of annual manufactures was $74,079,540, equal to $215,975 per mile. It thus appears that we have per mile upon our road, 21 per cent. more population, and 55 per cent. more annual manufactures; and I know of no reason why the revenue to be expected from these two sources should not be correspondingly increased.

For the year 1860, I can not give you the proportion between through and local business on the Boston and Albany line, as the Western railroad made no separation in their returns. For the year 1861, the Worcester railroad returned local passenger business amounting to $4,418 per mile; and local freights amounting to $2,458 per mile. The Western railroad again made no separation in its returns, but I find in the report of the commissioners upon the Hoosac Tunnel, that "the local business of the Western railroad between Springfield and Albany for the year ending Nov. 30th, 1861, was, for passengers, $1,589 per mile, and for freight, $2,460 per mile." Taking the average of these two portions of the line will doubtless give an average for the whole line between Boston and Albany not far from correct, and this gives $3,003 per mile for passengers, and $2,459 per mile for freight. Increasing these amounts by the same per centage, by which the population and business on our line exceeds those on the other, we shall have for the Boston, Hartford & Erie railroad for local passenger business, $3,634 per mile, and for local freights, $3,811 per mile—

together $7,445 per mile, amounting for the 343 miles to $2,553,635.

The Erie railway is at the present time, as I am informed, carrying to Jersey City 1,000 tons of freight daily, destined for New England. In the winter season it does not amount to so much, but the business is constantly increasing, and by the time the road is completed to the Hudson, it certainly will be reasonable to count on an average of 1,000 tons per day the year through. Experience shows that the return freight amounts to about one-third of the eastward bound freight. We may then calculate upon 1,300 tons per day of through freight, amounting for the year to 406,900 tons. As much of this will probably be wheat and flour, I shall count the receipts from it at only $2.50 per ton, amounting at this price to $1,017,250. The through passengers I shall estimate at only fifty per day each way, making 31,300 per year, at $5 each, amounting to $156,500.

Incidentally the through business between Boston and New York, which may pass over our portion of the line will add materially to the income of the road. Taking the number of passengers, and the amount of freight between the two cities to be as generally estimated, and giving to our line its fair share of each, I assume that our receipts from that source will amount to $860,103. The data from which I derive this result will be found at large in my report above referred to.

The coal business which this line may expect to do will be very large. The Delaware and Hudson Canal enters the Hudson at Rondout thirty miles above Fishkill Landing, and that Company brought to the Hudson in 1863, 828,150 tons of coal. The Pennsylvania Coal Company sent 662,904 tons of coal by the same route in that year. The aggregate amount of coal sent by both Companies over the Delaware and Hudson Canal to Rondout, for the last ten years, including 1863, was 12,689,000 tons.

The amount of coal delivered this year into the month of September, by the Delaware and Hudson Canal Co., at Rondout, is reported at 606,282 tons,
and by the Penn. Coal Co., at the same place, 356,701 "

962,983 tons.

The Pennsylvania Coal Company have connected their mines

by rail with the Erie Railroad, and have a contract with that road for the delivery of 1,000,000 tons yearly at the Hudson River. A branch extends from the Newburgh junction at Chester, south-westerly to Warwick, and it is in contemplation to extend it thence by the Delaware Water Gap to the Lackawana and Lehigh coal fields, the latter being by this route twenty-six miles nearer to the Hudson River at Newburgh, than by the present line to New York.

We could not be better situated for receiving and transporting a very large portion of the anthracite coal for New England, which, in 1863, received about 1,600,000 tons of coal from Pennsylvania, and of which amount Boston received 589,921 tons. The coal dealers are now obliged to lay in large stocks before the approach of winter; our line can deliver it regularly the year round. Moreover, under the lower rate of freights we should be able to offer, the consumption in the interior would rapidly increase, and factories, depending upon coal and steam, instead of water-power, would multiply along the line. I think we may count upon 300,000 tons of this freight to commence with; and supposing it to bring us an average of $2.50 per ton, which would be a lower cost than the old rates, this would amount to $750,000.

There is another branch of business peculiar to our road, which has not been embraced in the comparison with other roads; it is the transportation of freight to and from the iron mines in the Fishkill valley. Our line passes through ore beds near Hopewell, which are now worked by Companies in Poughkeepsie and Cold Spring. There are also many other ore beds in the valley, and they are inexhaustible. This ore is hematite, and of equal purity with the celebrated Salisbury ore, making the best of soft iron. In consequence of the scarcity of charcoal they are now paying three dollars per ton for transportation of anthracite coal from the Hudson River, sixteen miles to the furnaces, whilst by rail it can be done at half that price, thus affording an inducement for increased production, which will furnish additional freights of manufactured iron eastward. But the principal demand will be for ore to supply furnaces on the Hudson River, of which there are already eleven in operation, and parties are look-

ing for locations near our terminus, to erect more. The present cost of transporting ore to the river is $3.00 and over per ton. At $1.50 per ton I have no doubt we should have 100,000 tons of ore yearly, to carry to the river, and probably as much coal to take back for furnaces at the mines; which would again give us about 30,000 tons of iron to be transported eastward, paying for freight, say $2.50 per ton more. When the convenience with which we can meet all the requirements of this business is considered, and the certainty that there will be a very large demand for iron for many years, while the heavy duties upon the foreign article will stimulate the home production, I think my estimates are below the probable results. This business I estimate at $375,000.

Besides the hematite ore beds of the Fishkill valley, there is the Tilly Foster magnetic ore vein east of the mountains, about one and one-half miles from the line of the road where it crosses the Harlem road. This vein is eighty to one hundred feet wide, half a mile long, and has been sunk to the depth of fifty feet without finding bottom: and there are other veins in the neighborhood of the same quality. This ore is now transported down the Harlem Railroad at $2.20 per ton, then up the Hudson River to the furnaces already mentioned, there to be mixed with the hematite ore for the purpose of making different qualities of iron. With our road completed to the Hudson, we should have 100 tons a day from this mine alone, to carry to the river, for which they would gladly pay $2.00 per ton; and we could bring them back as much coal to be used on the spot in reducing the finer or refuse ore, which would again give us some fifty tons of iron to carry off, amounting in the whole to about $500 per day, or $156,500 per year.

There is another item of business, viz., the cattle trade. The value of this business done at Brighton in 1860, was over $4,000,000, and it was not included in the amount given for the Albany line. A large amount of cattle and live stock is at the present time brought across the river at Fishkill, and driven east, and after the completion of our road, stock transportation for Boston market would form a considerable item of business. From the details of the business on the New York Central, Erie Railway, and

the Newburgh Ferry,* I think it should be estimated at least 500 tons per week, at, say $5.00 per ton, amounting to $130,000 per annum.

These several sources of revenue make the following aggregate:

Local business, freight and passengers,			$2,553,635
Erie through	"	"	1,173,750
New York	"	"	860,103
Coal	"		750,000
Hemetite ore	"		375,000
Magnetic	"		156,000
Cattle and stock	"		130,000
			$5,998,488

Allowing 60 per cent. of this for expenses, which appears by comparison with other roads† to be an ample allowance, $3,599,392, leaves us nett revenue $2,399,596, which is equal to interest or dividend at 8 per cent. on a capital of $29,994,950, or 7 per cent. on $34,279,943.

There is another item of income which I have not adverted to, nor included in the above estimate. I mean the exportation of the produce of the West to Europe. The annual average amount of bread stuffs and provisions exported from this country for five years, from 1858 to 1862 inclusive, was $70,000,000. It would seem that the advantages held out by your line for the moving of freights to the sea-board, should give your road a reasonable share of the products designed for exportation.

These calculations of income, as you will observe, are based upon prices prevailing before the war, and perhaps may be increased with propriety at the time the road shall be completed. There is certainly a propriety in referring both cost and profit to the same basis.

Several of the principal lines of road have quite recently advanced the rates of fare and freight about 25 per cent. This is not unreasonable, in view of the increased rates demanded for labor and materials. If such an addition in price is reasonable on other roads, it should be added to the rates I have given, which are generally below the rates prevailing before the war.

Such, gentlemen, is the amount of business which I think will

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*See appendix, page 38. †See appendix, page 37.

accrue to your road when complete and equipped. I do not mean to state that this business will be obtained as the result of the expenditure for construction above reported, which is for a single track road, which cannot conveniently do the business anticipated. My object has been to show the public and private benefits to be obtained by a steady and continuous application of means as fast as prudence will permit, until the demands of the business upon the line shall be satisfied, and the line fully constructed and equipped. As I have made estimates for only a single track road, so have I only estimated the income to be expected as soon as business is fairly directed upon the line; afterwards it will be constantly increasing, and then facilities will be afforded to meet the increased demand.

E. APPLETON, *Chief Engineer.*

Boston, Sept. 7th, 1864.

REPORT OF THE CONSULTING ENGINEERS.

To Geo. M. Bartholomew, Esq.,

President of the Boston, Hartford & Erie Railroad Company.

Sir:—In accordance with your request received through Mr. Appleton, we have examined the entire line of the Boston, Hartford & Erie railroad, and have also given attention to the estimates of cost.

It will be convenient to allude shortly to each of the divisions of your enterprise to which our attention has been called.

These are,

1st. The line located between the Hudson river and Waterbury.

2nd. The piece of road in operation between Waterbury and Hartford.

3d. The piece of road in operation between Hartford and Willimantic.

4th. The piece of road in operation between Willimantic and Providence.

5th. The location of that part of the trunk line situated between Willimantic and Mechanicsville.

6th. The piece of road completed, but for some years in disuse, between Mechanicsville and Blackstone.

7th. The branch from East Thompson, towards Palmer.

8th. The portion of the eastern end of your trunk line in operation between Blackstone and Dedham.

9th. The portion, partly constructed but not yet in operation between Dedham and Boston.

1st. The located line submitted to us between the Hudson river and Waterbury (76 miles.) We passed over the entire line of the location, examining with some care the most difficult points. The general location of the line appeared to us to be very satis-

factory, and spoke well for the skill and faithfulness of the engineers engaged upon it.

The maximum grades adopted, your engineer informs us, are 60 feet per mile, going east, and 66 feet going west. The minimum radius of curvature 1,146 feet.

In these respects the alignment of your road would be superior to that of the Western railroad of Massachusetts, with which, as crossing the main ridges of the country towards the same valley of the Hudson river, it is natural to compare it.

It should have been mentioned, that, opposite the Fishkill terminus on the Hudson river, it is proposed to build freight wharves, and accommodations on the west bank of the Hudson, connecting there with the Newburgh branch of the Erie railroad, by an independent branch of about six miles in length.

Our attention has been called to the estimates of your engineer for this part of the road; the prices adopted appear to us fair and sufficiently liberal to meet the old rates of labor, as they were in 1860, to which year he refers as the basis for the estimates.

2d. Between Waterbury and Hartford, (32½ miles.) This part of your main line is in operation, graded for a single track; a survey was exhibited which shows this part of the road could be much improved by shortening the line and reducing the curvature without exceeding the maximum grades. The track on this division is in good order and the rails seemed to be very little deteriorated by use.

3d. Between Hartford and Willimantic, (31½ miles,) a part of the trunk line, which is graded for a single track, and has been in operation some time; it is in very good running order at present. It is proposed to straighten the road, and avoid three road crossings at grade in Manchester, and to shorten the line at Hartford, crossing the Connecticut river below the present bridge by a new structure. This would make a valuable improvement of the line, but it admits of being deferred without detriment to the service of the road, until the portions yet to be constructed are well under way.

4th. At Willimantic the Providence line, (58½ miles,) of your enterprise diverges. We passed over it in the cars to Providence, and found the road in fair order and the rails in good condition. The road terminates at the general railroad depot in Providence,

where we were informed a new engine house was about to be built.

This line follows an important valley as regards water power, where already exist many manufacturing villages, evidently rapidly growing in population and wealth.

5th. Willimantic to Mechanicsville (26 miles). We rode over this part of your line, examining with much interest the location, which has been very carefully executed.

At Putnam the line touches the Norwich and Worcester Railroad at grade, and will make a connection there.

6th. Mechanicsville to Blackstone (23 miles). This portion of the main trunk was in operation in 1854 for a short time; since then has been in disuse. It was graded for a single track road; the superstructure remains as it was laid. The rails are good and seem but little damaged by their long exposure.

The road crosses the Norwich and Worcester Railroad at a point about two miles north of Putnam. At East Thompson the branch road from Palmer and Southbridge connects with it. Considerable trestle work occurs at Blackstone, in and near the village; this is being replaced by embankment and permanent bridge work.

7th. Palmer Branch (37 miles). This branch when completed will join the Western Railroad at Palmer, thereby connecting your road directly with the upper part of the Connecticut river, and with Albany and the Northwest. We are informed that the highest summit on this line, as between Boston and Springfield, is 200 feet lower than the Charlton summit of the Western Railroad.

From East Thompson, on the trunk line, to Southbridge (17 miles). This branch has been for some time partly graded, passing through the village of Webster, where it crosses the Norwich and Worcester Railroad at grade. From Southbridge to Palmer, the line which is not yet commenced, will probably be built by a different corporation. The works required for the road bed are quite light over the whole of this branch line. The road passes through a well cultivated country; and this part of the valley of the Quinebaug, in which it is located, possesses much valuable water power. At Southbridge large factories exist and the village gives more than usual evidence of New England enterprise and life.

8th. Blackstone to "the junction" near South Dedham (24 miles). This portion of the line has been in operation since 1849 as far as "the junction," and from the junction by a short branch (2 miles) to Dedham, where this branch connects with the Dedham branch of the Boston and Providence Railroad.

9th. South Dedham, 3 miles southwest of "the junction," to Boston (15 miles). The grading on this division is nearly completed for a double track, and two excavators are at work in gravel pits up the line for the construction of embankments over the low grounds near the city where piles had at first been driven for the substructure of the road.

At Boston large depot accommodations are about to be prepared for the freight and passenger business of the road, embracing a convenient track connection with the deep water of Boston harbor, and accommodations there for the exchange of freight with the coast shipping and also with European shipping and steamers. This will involve some heavy work of filling, walling and dredging, the extent and value of which will depend on circumstances yet to be developed, but which promise important results. The local knowledge of members of your board, and the past history of harbor improvements here, will enable you to arrive at a safe judgment on these points.

The plans for passenger and freight houses at Boston have been shown us, and appear ample to meet the present requirements of your road.

It remains to speak of the general cost of your entire enterprise, for which complete estimates are not before us; the quantities of work on some of the divisions not having yet been received by your engineer.

The general prices, however, which are to govern your engineer in making up these estimates, have been submitted to us; they are for the greater part based on prices that prevailed in 1860, and we consider them reasonable for that date.

The quantities of work to be done on the different divisions of your road, were they all at hand, we are not expected to check by calculation, nor should we have any disposition to do so; the assistant engineers on the several divisions are evidently men of

considerable experience in such work, and the results of their calculations, errors excepted, we are disposed to receive as entirely reliable. The estimates, therefore, of Mr. Appleton, your chief engineer, based on the prices which he has shown us, with liberal allowances for the somewhat indefinite works of general accommodation at the termini, will give a safe idea, we believe, (the expenses attending financial operations excepted,) of the probable cost of your enterprise. Mr. Appleton seems to us to have well considered the subject in all its bearings, and to have the railroad information and experience calculated to make him a very safe guide to you in the engineering part of the very comprehensive undertaking which you have in hand.

Respectfully submitted by

GEO. R. BALDWIN,
JULIUS W. ADAMS.
JAMES P. KIRKWOOD.

Boston, 6th June, 1864.

Charlestown, Sept. 12th, 1864.

To the President and Directors of the Boston, Hartford & Erie Railroad Company.

Gentlemen:—Having examined the detailed report of Mr. Appleton, your chief engineer, on the estimated cost of completing your entire system of railroads, extending from Boston to the Hudson river, at Fishkill, as well as his estimate of the ultimate business and profit to be derived therefrom, and having in company with Messrs. Kirkwood and Adams of New York, passed over and reported to you on these roads, I do not hesitate to express my conviction of their perfect reasonableness and fairness.

Yours, &c.,

GEO. R. BALDWIN.

New York, Sept. 16th, 1864.

I have examined Mr. Appleton's detailed estimate of the cost of the Boston, Hartford & Erie railroad, based upon the prices of work and materials which ruled in 1860, or what may now be called a "specie basis," and entirely concur in Mr. Baldwin's opinion as to their fairness, &c.

JULIUS W. ADAMS.

APPENDIX.

The following statistical tables, suggest to capitalists, and others engaged in the movements of productions and manufactures, a striking comment upon the power and radiating influences of our railroads. They are compiled and condensed from the Census Bureau Reports, Annual State Reports, and authentic periodical publications, and illustrate better than any context, the influence of railroads upon the *growth of population, increase of national and domestic wealth,* and their *comparative and reciprocal power with the currency,* and upon the *augmentation of the value of farming lands.*

The States of Massachusetts, Rhode Island, Connecticut and New York have been selected to illustrate the subject, not only because the Boston, Hartford and Erie Railroad passes through them, but because their railroad systems are mature, and tested by long practical experience. The averages and results in the tables have generally been restricted to periods prior to and including the year 1860, as it is believed the war has created an artificial stimulus to railroad movements and tonnage, too excessive for safe averages.

RAILROADS OF THE UNITED STATES, JAN. 1, 1864.

Statement showing the actual mileage and cost of the railroads in each State, etc.

	Mileage.		Cost of Road and Equipm't
	Total.	Completed.	
Maine,	640.59	509.37	$17,788,316
New Hampshire,	687.73	661.32	21,130,271
Vermont,	586.17	586.17	23,076,034
Massachusetts,	1,339.42	1,277.54	59,985,187
Rhode Island,	156.44	123.94	5,368,974
Connecticut,	770.75	615.61	22,158,622
New York,	3,505.76	2,892.46	134,410,508
New Jersey,	951.25	761.77	36,363,438
Pennsylvania,	4,070.77	3,545.36	165,817,836
Delaware,	182.59	126.60	4,345,761
Maryland and Dist. of Colunbia,	709.90	467.80	25,580,373
West Virginia,	361.50	361.50	16,342,979
Kentucky,	888.40	550.20	22,209,900
Ohio,	4,550.10	3,356.74	130,454,383
Michigan,	1,425.50	809.20	31,318,956
Indiana,	2,579.57	2,173.57	71,713,528
Illinois,	3,698.90	3,080.10	118,308,572
Wisconsin,	1,680.28	986.28	34,445,233
Minnesota,	1,460.00	70.00	5,200,000
Iowa,	2,256.80	872.30	25,704,052
Missouri,	1,412.39	914.75	45,912,879
Kansas,	360.00	40.00	1,000,000
California,	512.73	120.05	5,780,000
Oregon	19.50	19.50	700,000
Total,	34,807.04	24,926.93	$1,025,115,742
Virginia,	2,016.48	1,378.70	$50,869,354
North Carolina,	1,320.42	945.30	18,241,295
South Carolina,	1,039.93	988.93	21,990,690
Georgia,	1,635.23	1,421.22	29,036,392
Florida,	586.50	401.50	8,628,000
Alabama,	1,434.70	801.16	21,351,102
Mississippi,	1,072.12	867.12	24,234,138
Tennessee,	1,393.48	1,304.77	33,545,511
Arkansas,	701.33	38.50	2,800,000
Louisiana,	838.00	334.75	13,630,219
Texas,	2,787.09	451.50	16,509,772
Total,	14,825.19	8,933.45	$240,836.473
Grand total,	49,632.23	33,860.38	$1,625,952,215
Do. last year,	49,136.48	32,470.95	1,224,221,671
Increase in 1863,	495.75	1,389.43	$401,730,544

MILES OF RAILROAD BROUGHT INTO USE DURING EACH YEAR, FROM 1851 TO 1860 INCLUSIVE.

	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	Total in 10 years.
Massachusetts,	2.00	9.70	57.90	38.93	128.69	.....	.....	.....	.....	.....	237.22
Rhode Island,	.....	.....	.....	26.32	13.60	.....	.....	.....	.....	.....	39.92
Connecticut,	51.00	43.70	.....	.....	.....	82.38	.....	.....	13.66	.....	190.74
New York,	442.45	404.22	156.33	161.30	27.95	46.35	32.36	1.25	15.53	11.00	1298.74

NUMBER OF MILES OF RAILROAD IN OPERATION IN EACH YEAR, FROM 1850 TO JAN. 1, 1864, INCLUSIVE.

	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.
Massahusetts,	1,035.74	1,037.74	1,047.44	1,105.34	1,144.27	1,272.96	1,272.96	1,272.96	1,272.96	1,272.96	1,272.96	1,314.35	1,257.73	1,279.54	1,277.54
Rhode Island,	68.00	68.00	68.00	68.00	94.32	107.92	107.92	107.92	107.92	107.92	107.92	104.02	104.32	123.94	123.94
Connecticut,	413.26	463.26	506.96	506.96	506.96	506.96	589.34	589.34	589.34	603.00	603.00	607.76	616.76	615.61	615.61
New York,	1,403.10	1,845.55	2,249.77	2,406.10	2,567.40	2,595.35	2,641.70	2,674.06	2,675.31	2,690.84	2,701.84	2,808.96	2,768.02	2,892.46	2,892.46

The apparent diminution in some years is in part occasioned by the different allowances of miles belonging to other adjoining roads and states.

POPULATION, AND VALUATION OF REAL AND PERSONAL ESTATE, 1860.

	Population.	Valuation.	Increase of valuation from 1850 to 1860.
Massachusetts,	1,231,066	$815,237,433	185.32 per ct.
Rhode Island,	174,620	135,337,588	68.10 "
Connecticut,	460,147	444,274,114	42.19 "
New York,	3,880,735	1,843,338,517	70.63 "

Aggregate increase of wealth in the United States for the 10 years ending 1860, was 125 per cent., or 12½ per cent. per year.

State.	Population in 1860.	Population per square mile.	Area in square miles.	Absolute increase of population per square mile.	
				1790 to 1850.	1850 to 1860.
Massachusetts,	1,231,066	157.83	7,800	109.28	30.33
Rhode Island,	174,620	133.71	1,306	80.79	20.74
Connecticut,	460,147	98.45	4,674	47.50	19.12
New York,	3,880,735	84.36	46,000	76.97	17.03

RATIO OF RAILROADS, SQUARE MILES, AND POPULATION.

	Year.	Whole number Miles of R. R.	One mile R. R. to square miles.	One mile R. R. to Population.
Massachusetts,	1850	1,035.74	7.5	960.1
	1860	1,272.96	6.1	967.07
Rhode Island,	1850	68.	19.2	2,168.
	1860	107.92	12.1	1,618.
Connecticut,	1850	413.26	11.3	897.23
	1860	603.	7.7	763.09
New York,	1850	1,403.10	32.7	2,207.5
	1860	2,701.84	17.02	1,066.2

MASSACHUSETTS RAILROADS.

The following statement of the condition of the steam railroads of Massachusetts and their operations in 1863, is gathered from the last annual returns:

Capital stock,	$69,362,052
Capital paid in,	57,546,563
Cost of roads and equipment,	66,809,802
Total length of miles in main roads and branches, (single and double tracks,)	1,941
Total income in 1863,	$11,950,739
Working expenses,	6,571,066
Net earnings,	5,379,673
Interest paid,	1,017,837

Among the dividends declared for 1863 were the following: Boston and Lowell, 7 per cent.; Maine, 8; Providence, 8; Worcester, 9; Connecticut River, 6; Eastern, 6; Fitchburg, 6; Fitchburg and Worcester, 6; Nashua and Lowell, 8; New Bedford and Taunton, 6; Norwich and Worcester, 5½; Old Colony and Newport, 6; Providence and Worcester, 8; Taunton Branch, 8; Western, 9; Worcester and Nashua, 6.

INFLUENCE OF RAILROADS UPON FARMING LANDS ACCESSIBLE TO RAILROADS.

Extracts from Census Reports, 1860.

"The progress of agriculture is seen in the tables, showing (in the report) the cash value of farms during the last ten years. There is an *increased value in farms, greater than the mere augmentation of crops would justify.* Farmers have given much of their gains to *making railroads and commercial highways*, and these investments have been fully returned to them. The INCREASED VALUE OF FARMS *has been* $3,376,534,976 OR 103 PER CENT. IN TEN YEARS (to 1860) OR *over* TEN PER CENT. PER ANNUM. This

is enormous." "Distant markets have been brought near, and consequently lands and products have improved beyond the value of improved acres."

"*Nothing so clearly demonstrates the value of railroads to the farming community as these statistics, and no investments have proved more advantageous, although such investments may never have paid a direct dividend.*"

The comparative influence of the *currency* and railroads is seen in the following return:

Circulation in 1850, - - - $155,012,881
" 1860, - - - - 207,102,477

increase of 33⅓ per cent., in contrast with increased value of farms subject to railroad influence of 103 per cent., or over 10 per cent. per annum.

It is believed that the Boston, Hartford & Erie Railroad, will, within five years after its completion, give to the property in the valley of the Fishkill or Matteawan Creek, a value greater than the whole cost of the construction and equipment of its western or New York division. R. G. R.

The same Railroad influence is seen in the augmented industry of the following States.

FROM CENSUS REPORTS.

The increase in manufactures in the States named will be seen from their value in the following table:

	1850.	1860.
Rhode Island,		$47,500,000
Connecticut,	$45,110,102	83,000,000
Massachusetts,	151,137,145	266,000,000
New York,	237,597,249	379,623,560
Ohio,	62,647,259	125,000,000
Pennsylvania,	155,044,910	285,500,000

"There is an increase of *seventy-five* per cent. Perishable and heavy agricultural products in proportion to their value find a near home market, which makes their cultivation profitable, whilst meat and breadstuffs are drawn from the remote States. Hence the fact that wheat production has decreased in several of the States,

and even in Ohio its acme has been reached. These facts show the value of manufactures to the agriculture of the country, as well as the reciprocal influence of the Railroad system. To the nearer farmer, for perishable and heavy products, they create a profitable market; and to the remote, for meat and breadstuffs, which may be transported greater distances.

It is in this way that manufactures in Massachusetts, Connecticut and Rhode Island sustain, not only the home farmers, but those, too, living in the Western States. No investigation would be more interesting or profitable than to trace out, in all their details, the commerce which different industrial pursuits create between remote States of the Union, and the mutual benefit which such States are to one another through the Railroad System."

In corroboration of the preceding statement, the following Railroad tonnage of New York is given for 1860. The classification is made by Companies.

	Tons Carried.	Value per Ton.	Total Value.
Product of the Forest,	37,329	$20.00	$7,468,480
" Animals,	895,519	200.00	179,103,800
Vegetable Food,	1,103,640	50.00	55,182,000
Other Agricultural Products,	143,219	15.00	2,148,055
Manufactures,	511,916	250.00	127,979,000
Merchandize,	783,811	500.00	391,905,500
Other Articles,	930,244	10.00	9,302,440
Total,	4,741,773	$163.00	$773,089,275

Making a deduction of one quarter for duplications passing over more than one road, the aggregate would be $3,556,330 tons, valued at $579,681,790.

The Railroads of Massachusetts transported, in 1860, 4,094,360 tons, or deducting duplications, 3,070,027 tons valued at $500,-524,201.

The number of miles of Railroad employed in the transportation of freight in New York, was 2,569, and in Massachusetts 1,317; making the proper deductions for duplications the amount of freight in these two States, averaged 1,720 tons per mile employed.

In Connecticut 605 miles transported in one year on an average, 1,500 tons per mile employed.

COST OF TRANSPORTATION, AND EXPENSES ON GROSS EARNINGS.

To form an Estimate of the Profits of the B., H. & E. R. R.

Deductions from the Reports of several of the principal Railroad Companies, showing, 1st. Average sum received per ton per mile on freight. 2d. Average cost per ton per mile transporting freight. 3d. Percentage of transportation expenses to gross earnings prior to 1860.

Name of Road.	Average per Ton per mile. Received for transporting.	Cost of transport'g.	Per cent. Transportation expense on gross earnings.
Buffalo, New York and Erie,	2.03	1.22	66.54
Buffalo and State line, - -	2.78	1.45	51.33
Erie Railway, - - -	1.89	.95	61.93
Hudson River, - - - -	2.26	1.20	51.89
Long Island, - - -	3.66	2.29	62.13
New York Central, - - -	2.23	1.39	59.93
New York and Harlem, -	3.74	2.82	60.43
New York and New Haven, -	4.54	3.10	54.39
Northern, - - - - -	2.05	1.19	64.11
Oswego and Syracuse, - -	3.49	1.72	44.71
Rome, Watertown and Ogdensburgh,	3.12	1.97	49.79
Saratoga and Whitehall, -	3.11	1.96	64.26
Syracuse, Binghampton and N.York,	1.26	.41	38.49
Average,			56.45

The number of tons of through freight carried Eastward and Westward by the New York Central Railroad during three years named, and the average receipts per ton for each year. The year taken before the war to show the regular business on a peace footing.

	Tons Carried.	Receipts.	Average per Ton.
1857,	292,877	$2,518,785.93	$8.60.00
1858,	312,408	2,125,726.85	6.80.43
1859,	348,079	1,995,572.07	5.73.28

Carried over the New York Central Railroad, year ending Sept. 20th, 1863.

Amount of Freight in Tons.

Product of the Forest,	52,829
" Animals,	395,870
Of Vegetable Food,	405,380
Other Agricultural Products,	72,476
Manufactures,	88,965
Merchandize,	310,275
Other Articles,	123,812
Total Tons,	1,449,604

Carried Eastward,	1,044,259	
" Westward,	405,345	1,449,604

Received at Albany and West Troy over the New York Central, 1863:

2,260,559 barrels of Flour.
632,325 of which *went directly to Boston.*
14,150 barrels of Whiskey, *went directly to Boston.*
40,440 bales of Wool, " " "
8,564 " Cotton, " " "
9,190 barrels of Apples, " " "

Tons of freight carried over the Erie Railway.

	1861.	
Through East,	405,505	471,314
Way "	422,302	501,018
Through West,	87,784	149,896
Way "	422,783	553,006
	1,333,374	1,675,234

Receipts from freight 1861, $5,011,661.14, av. cost per ton, $2.09
" " 1862, 7.065,363.07, av. cost per ton, 2.23

Cattle and Live Stock Trade.

Few persons have a correct idea of the magnitude and importance of this trade. From the West to the East one continuous

current of living animals is pouring a life and wealth producing influence upon our commercial and industrial population.

The value of cattle sent to New York City in a single year exceeds *thirty-five millions* of dollars, a large portion of which comes from the rich pastures of southern Illinois and Indiana.

Amount of Live Stock passed over the Erie Railway in 1863:

			Cars used.	Average head per car.
Cattle,	(Heads,)	101,772	5,654	18
Hogs,	"	201,160	2,224	90
Sheep,	"	146,400	732	200
Horses,	"	7,716	643	12
Mules,	"	630	35	18
Elks,	"	48	4	12
Poultry, car loads,			53	

The transportation of the above employed 9,395 cars.

Number of head of cattle that passed over the New York Central in 1860: 164,749.
1861, 172,993.
1862, 177,365.
1863, 190,170.

Aggregate of Cattle arriving at the Hudson River in 1863:

By Erie Railway, -	101,772
" New York Central,	190,170
" Newburgh Ferry, -	11,345
	303,287

at 900 pounds per head, gives 2,624 tons per week—656 tons per day. Not including cattle crossing by other ferries.

It must be remembered that these two railway lines carry but a portion of the cattle and stock destined to the Brighton (Boston) and New York markets.

The ferry from Newburgh to Fishkill transported, from January to December, 1863, 11,345 head; and from January to May, 1864, 3,827 head, of the aggregate value of $1,638,576.

Seventy per cent. of this was destined for New England markets, mostly passing through, or near, New Fairfield. By means of a third rail on one of our tracks, and the trackways on our ferry boats, the cattle and stock can be transported from the Erie railway broad gauge, and (when the road is extended from Catskill,) from the New York Central to and concentrated at Fishkill Village, five miles from the river.

This location presents one of the finest sites for the greatest cattle and stock market in the country. Equally accessible to New York by the Harlem & Hudson river railroads, to Boston by our

own and also to the distribution afforded by the nine other intersecting roads, the most abundant forage—the richest pastures—the purest water—and plains covering thousands of acres of grazing lands, at moderate prices, with ample banking facilities, combine in suggesting this neighborhood as the probable great cattle market of the country.

Orders sent over the telegraphic line belonging to the B., H. & E. R. R. to Fishkill, from Boston or New York, in the evening, will secure the delivery of the cattle fresh and uninjured by shrinkage, at either place, for immediate delivery the next morning.

Comparative statement of the movement of freight on the two railways connecting New York with Lake Erie and the State canals, during the last four years, showing the tons carried each year, the total movement, or number of tons moved one mile, and the freight and tolls received thereform. Those acquainted with the value of productions on the line of the Boston, Hartford & Erie Railroad, may form some idea of its importance as a direct connection between Boston and the Mississippi.

	1856.	1857.	1858.	1859.
Tons carried by railway,	1,719,327	1,816,857	1,582,371	1,703,392
Tons carried by canal,	4,116,082	3,344,061	3,665,192	3,781,684
Aggregate of both,	5,835,409	5,160,918	5,247,563	5,485,076

Statement showing the tons of each class of property transported on the New York Central, and the Erie Railway, and on the New York Canals, during the year 1859, before the war.

	The forest.	Product of animals	Vegetable food.	Other agricultural products.	Manufactures.	Merchandise.	Other articles.	Total.
New York C. R. R., -	35,154	205,167	249,751	30,096	57,036	178,782	79,333	834,319
New York & Erie R. R.,	97,754	170,322	112,727	15,107	94,266	179,050	199,846	869,072
	132,908	374,489	362,478	45,203	151,302	357,832	279,179	1,703,391
New York State Canals,	1,542,035	36,151	773 655	6,978	299,421	211,182	912,262	3,781,684
Excess by Canals, -	1,409,127		411,177		148,119		633,083	2,601,506
Excess by Railroad, -		338,338		38,225		146,650		523,213
Total excess by Canals,								2,078,293

ADDENDA.

Under the authority granted by the respective charters of the New York & Boston Railroad Company, and of the Boston, Hartford & Erie Railroad Company, these corporations were united on the 16th December, 1864, under the name of the Boston, Hartford & Erie Railroad Company.

By this arrangement all the chartered rights and privileges of the two companies are secured to the new corporation, and a long continued, expensive competition and strife, is discontinued, which will aid to hasten the early completion of a line between Boston and New York, much shorter than either of the present routes, and also to provide the new line to the Hudson River, at Fishkill, connecting with the Erie Railway at Newburgh.

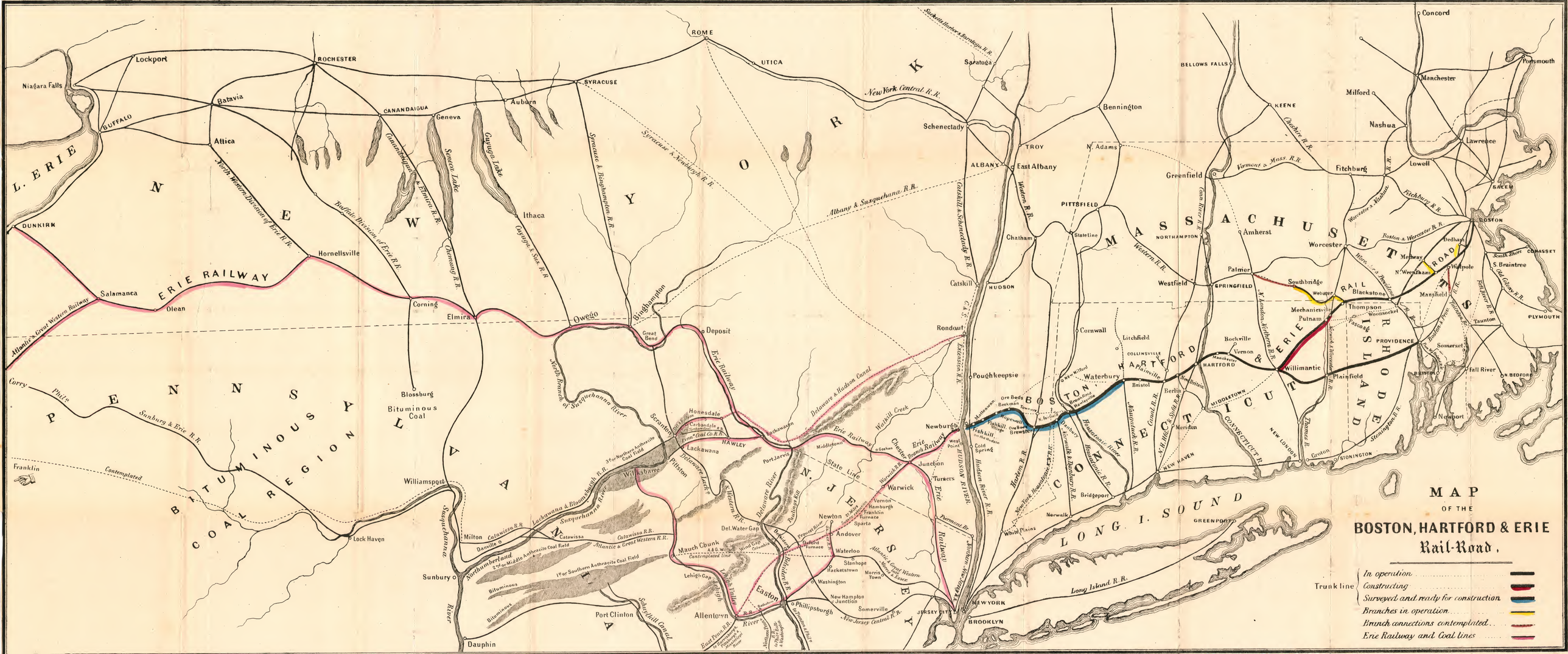
In the Spring of 1865, there will be in running order the following sections: from Boston to Woonsocket, 34 miles; Boston to Mechanicsville, 59.57; Dedham Branch, 2.00; Providence to Waterbury via Willimantic and Hartford, 122.50; Southbridge Division, 17.50; in the aggregate, 235.57 miles.

The amount expended on these divisions will not fall much short of thirteen millions of dollars.

The line from Woonsocket via Pascoag, towards the Norwich & Worcester Railroad, and from Putnam to Willimantic, are being graded.

Since the Reports of September 25, 1864, the Directors have received from various sources the most indisputable evidence that the estimate of business on the lines of the Boston, Hartford & Erie R. R. were far below what will be proved by actual results.

Applications have been made by responsible parties for contracts to complete at an early date the entire work, and the subject is under advisement.


MAP
OF THE
BOSTON, HARTFORD & ERIE
Rail-Road.
Trunk line
In operation
Constructing
Surveyed and ready for construction
Branches in operation
Branch connections contemplated
Erie Railway and Coal lines
ERIE RAILWAY
NEW YORK
PENNSYLVANIA
NEW JERSEY
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
L. ERIE
L. ONTARIO
LONG I. SOUND
BITUMINOUS COAL REGION
Niagara Falls
Lockport
BUFFALO
ROCHESTER
Batavia
Attica
CANANDAIGUA
Geneva
SYRACUSE
Auburn
ROME
UTICA
Schenectady
Saratoga
Rockets Harbor & Saratoga R.R.
New York Central R.R.
Syracuse & Binghampton R.R.
Syracuse & Newburgh R.R.
Albany & Susquehana R.R.
Catskill & Schenectady R.R.
Canandaigua & Elmira R.R.
Seneca Lake
Cayuga Lake
Cayuga & Seneca R.R.
Chemung R.R.
North Western Division of Erie R.R.
Buffalo Division of Erie R.R.
DUNKIRK
Hornellsville
Salamanca
Olean
Corning
Elmira
Ithaca
Owego
Binghampton
Deposit
Great Bend
Rondout
Poughkeepsie
Newburgh
Catskill
HUDSON
ALBANY
TROY
East Albany
Chatham
Stateline
PITTSFIELD
Bennington
BELLOWS FALLS
KEENE
N. Adams
Greenfield
Vermont & Mass. R.R.
Fitchburg
Lowell
Nashua
Milford
Concord
Portsmouth
Manchester
Lawrence
SALEM
BOSTON
Worcester
NORTHAMPTON
Amherst
Palmer
Westfield
SPRINGFIELD
Southbridge
Webster
Blackstone
Mechanicsville
Putnam
Thompson
Woonsocket
Pascoag
Providence
Mansfield
Taunton
PLYMOUTH
S. Braintree
COHASSET
Somerset
Fall River
NEWPORT
NEW BEDFORD
Cornwall
Litchfield
COLLINSVILLE
Plainville
Bristol
Berlin
New Britain
HARTFORD
Rockville
Vernon
Willimantic
Hainfield
MIDDLETOWN
Meriden
CONVENTICUT
NEW LONDON
GRISTON
STONINGTON
NEW HAVEN
Waterbury
Derby
Ansonia
Bridgeport
Norwalk
White Plains
GREENPORT
Long Island R.R.
BROOKLYN
NEW YORK
JERSEY CITY
Somerville
New Jersey Central R.R.
Phillipsburgh
New Hampton Junction
Washington
Stanhope
Hacketstown
Morris Town
Waterloo
Andover
Newton
Vernon
Hamburgh
Franklin Furnace
Sparta
Warwick
Junction
Turners
Cold Spring
West Point
Middletown
Goshen
Port Jervis
Delaware River
Delaware & Hudson Canal
Erie Railway
Erie Branch Railway
Wallkill Creek
Hudson River R.R.
Harlem R.R.
New York & Harlem R.R.
Housatonic R.R.
Housatonic River
Naugatuck R.R.
Naugatuck River
Canal R.R.
N.H. Hd. & Stfd. R.R.
Thames R.
Stonington R.R.
Boston & Worcester R.R.
Worc. & Nash. R.R.
Worcester & Nashua R.R.
Fitchburg R.R.
Vermont & Mass. R.R.
Cheshire R.R.
Boston & Prov. R.R.
Providence & Worcester R.R.
Old Colony R.R.
Fall River R.R.
Norfolk County R.R.
Dedham
Medway
N. Wrentham
Walpole
South Shore
Mansfield & Framingham R.R.
N. London-Northern R.R.
Western R.R.
Hudson & Berkshire R.R.
Ore Beds
Beekman
Brewsters
Fishkill Village
Fishkill Landing on the Hudson
Matteawan
Dover
Wilmot
Sharon
Amenia
Millerton
Boston & Erie R.R.
Lackawana & Bloomsburgh R.R.
Susquehanna River
Williamsport
Lock Haven
Milton
Danville
Northumberland
Sunbury
Susquehanna River
Dauphin
Port Clinton
Schuylkill Canal
Allentown
Easton
Lehigh River
Lehigh Gap
Mauch Chunk
Del. Water Gap
Delaware Water Gap
Lackawana
Pittston
Wilksbarre
Honesdale
Carbondale
Penn Coal Co. R.R.
HAWLEY
Scranton
Dundaff
Susquehanna
North Branch of Susquehanna River
Franklin
Contemplated
Corry
Phila
Sunburg & Erie R.R.
Blossburg
Bituminous Coal
Catawissa R.R.
Catawissa
Atlantic & Great Western R.R.
Northumberland
2nd or Middle Anthracite Coal Field
1st or Southern Anthracite Coal Field
3rd or Northern Anthracite Coal Field
Bituminous
Bituminous
Lehigh Valley R.R.
Morris Canal
Delaware Division Canal
Belvidere Delaware R.R.
Delaware & Raritan Canal
Camden & Amboy R.R.
Trenton
Raritan River
Raritan Bay
Sandy Hook
Atlantic & Great Western Railway
Pennsylvania R.R.
Harrisburgh & Lancaster R.R.
Harrisburgh & Susquehanna R.R.
Susquehanna River
Schuylkill River
Wyoming Canal
Wyoming Valley R.R.
Wilksbarre & Berwick R.R.
Wilksbarre & Susquehanna R.R.
Susquehanna River
Wind Gap Columbia
Delaware River
Raritan River
Oxford Furnace
Stanhope
Morris Town
Somerville
Junction
Vermont Rs
Rensselaer & Saratoga R.R.
Troy & Greenfield R.R.
Housatonic R.R.
Housatonic River
Naugatuck R.R.
Naugatuck River
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Stonington R.R.
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